If you are using a printed copy of this procedure, and not the on-screen version, then you MUST make sure the dates at the bottom of the printed copy and the on-screen version match.
The on-screen version of the Collider-Accelerator Department Procedure is the Official Version.
Hard copies of all signed, official, C-A Operating Procedures are kept on file in the C-A ESHQ Training Office, Bldg. 911A.

C-A OPERATIONS PROCEDURES MANUAL

7.1.68 RHIC Ring Helium Purge Procedure

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Hand Processed Changes

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Collider-Accelerator Department Chairman Date

D. Lederle

7.1.68 RHIC Ring Helium Purge Procedure

1. Purpose

This procedure describes the preferred method of establishing a helium purge to the RHIC ring to prevent air and moisture from entering the magnet line during magnet repairs that are made during accelerator operations.

2. Responsibilities

2.1 A Shift Supervisor, or an Operator designated by the Shift Supervisor, is responsible for conduction the procedure and providing documentation in the Cryogenic Control Room Log.

2.2 Should a problem arise during the completion of this procedure, the Shift Supervisor shall contact the Technical Supervisor for instructions before continuing.

3. Prerequisites

The sector where the magnet repair will be made is depressurized and warmed up to room temperature and LOTO is in place.

4. Precautions

Excessive helium flow into tunnel with inadequate ventilation can create an oxygen deficient environment. Therefore, whenever a helium purge is established, POM's are required when working in areas near open magnets in the tunnel.

5. Procedure

5.1 Have a helium tube trailer delivered to a service building at either end of the magnet repair.

5.2 Using P&ID's or control system printouts, choose a pressure transducer location that will be used to connect a hose from the helium tube trailer. Choose a location so that the flow can be split, providing helium directly to the m-line flowing towards the repair location, and also to a RUSH line so that helium can flow down the line, past the repair location to the next valve box where the flow will be reversed back into the m-line and flow toward the repair location from the other direction.

5.3 Make a note in control room log that this pressure transducer is out of service.

5.4 Identify the automatic valves that will be used in this flow path and disable them in the open position and apply red tags only (do not lock). For fail open valves, open valve, shut off air supply and red tag closed the air valve. For fail closed valves, connect an air supply to the vent port of the solenoid by teeing off the normal air supply. Air pressure must be supplied to both the normal connection port and the vent port so that the valve remains open regardless of the position of the solenoid. Apply red tag to the vent port line.

5.5 If a vacuum manifold is to be used in the flow path, the vacuum manifold circle seal 10 psig relief valve may have to be disconnected from the relief valve manifold and plugged. Red tag any plugged relief valves for documentation purposes.

5.6 At the tube trailer, connect a regulator and a 20 psig relief valve immediately down stream of the regulator. Connect and purge hose from the regulator/relief valve assembly to the chosen pressure transducer. If the connection into the cryo system is not through a pressure transducer port, contact the cryo technical supervisor or operations group leader for proper relief valve setting.

5.7 Immediately prior to the m-line being cut, vent the m-line to atmosphere. Use vacuum manifold, or vent at the tube trailer.

5.8 Immediately after the m-line is cut and the ok is given by the magnet repair crew, commence helium purge. Set regulator to 10-15 psig.

5.9 Immediately after the purge is started, go to the repair location and verify that helium is exiting from the repair location (preferably from both directions) and that POM's do not alarm in general area of the repair. Make this same check at least once per shift for the duration of the helium purge.

5.10 Magnet repair crews must contact cryo control prior to completing or temporarily ceasing work for an extended period of time, such as overnight. They must also contact cryo control upon resumption of work.

5.11 Whenever work has temporarily stopped, the magnet repair crew must make every reasonable effort to seal any process lines. Once this is done the cryo group will reduce the purge supply pressure to 2-3 psig. When repair work has been restarted, cryo personnel must restore purge supply pressure to its previous setting after receiving word from the magnet repair crew.

5.12 When the magnet repair is complete, remove purge equipment and restore pressure transducer. Note in cryo log.

6. Documentation

6.1 The Shift Supervisor shall document the completion of the procedure in the Cryogenic Control Room Log.

7. References

None

8. Attachments

None